That which is claimed is:

1. A process for the production of refinery transportation fuel or blending components for refinery transportation fuel, which process comprises:

providing oxidation feedstock comprising a mixture of hydrocarbons, sulfur-containing and nitrogen-containing organic compounds, the mixture having a gravity ranging from about 10° API to about 100° API;

contacting the oxidation feedstock with an immiscible phase comprising at least one organic peracid or precursors of organic peracid, in a liquid reaction mixture maintained substantially free of catalytic active metals and/or active metal-containing compounds and under conditions suitable for oxidation of one or more of the sulfur-containing and/or nitrogen-containing organic compounds; and

separating at least a portion of the immiscible peracid-containing phase from the reaction mixture; and

recovering a product comprising a mixture of organic compounds containing less sulfur and/or less nitrogen than the oxidation feedstock from the reaction mixture.

2. The process according to claim 1 wherein the immiscible phase is formed by admixing a source of hydrogen peroxide and/or alkylhydroperoxide, an aliphatic monocarboxylic acid of 1 to about 8 carbon atoms, and water.

3. The process according to claim 1 wherein the immiscible phase is formed by admixing a source of hydrogen peroxide, a source of acetic acid, and water.

4. The process according to claim 1 wherein at least a portion of the separated peracid-containing phase is recycled to the reaction mixture.

5. The process according to claim 1 wherein all or at least a portion of the oxidation feedstock is a product of a hydrotreating process for petroleum distillate consisting essentially of material

boiling between about 50° C. and about 425° C. which hydrotreating process includes reacting the petroleum distillate with a source of hydrogen at hydrogenation conditions in the presence of a hydrogenation catalyst to assist by hydrogenation removal of sulfur and/or nitrogen from the hydrotreated petroleum distillate.

6. The process according to claim 5 wherein the hydrogenation catalyst comprises at least one active metal, selected from the group consisting of the *d*-transition elements, each incorporated onto an inert support in an amount of from about 0.1 percent to about 20 percent by weight of the total catalyst.

7. The process according to claim 5 wherein the hydrotreating process further comprises partitioning of the hydrotreated petroleum distillate by distillation to provide at least one low-boiling blending component consisting of a sulfur-lean, mono-aromatic-rich fraction, and a high-boiling liquid consisting of a sulfur-rich, mono-aromatic-lean fraction, and wherein the oxidation feedstock is predominantly the high-boiling liquid.

8. The process according to claim 7 further comprising blending at least a portion of the low-boiling fraction with the product containing less sulfur and/or less nitrogen than the oxidation feedstock to obtain components for refinery blending of transportation.

9. The process according to claim 1 wherein the high-boiling oxidation feedstock consists essentially of material boiling between about 200° C. and about 425° C.

10. The process according to claim 1 wherein the conditions of oxidation include temperatures in a range upward from about 25° C. to about 250° C. and sufficient pressure to maintain the reaction mixture substantially in a liquid phase.

11. A process for the production of refinery transportation fuel or blending components for refinery transportation fuel, which process comprises:

hydrotreating a petroleum distillate consisting essentially of material boiling between about 50° C. and about 425° C. by a process which includes reacting the petroleum distillate with a source of hydrogen at hydrogenation conditions in the presence of a hydrogenation catalyst to assist by hydrogenation removal of sulfur and/or nitrogen from the hydrotreated petroleum distillate;

fractionating the hydrotreated petroleum distillate by distillation to provide at least one low-boiling blending component consisting of a sulfur-lean, mono-aromatic-rich fraction, and a high-boiling feedstock consisting of a sulfur-rich, mono-aromatic-lean fraction;

contacting at least a portion of the high-boiling feedstock with an immiscible phase comprising at least one organic peracid or precursors of organic peracid, in a liquid reaction mixture maintained substantially free of catalytic active metals and/or active metal-containing compounds and under conditions suitable for oxidation of one or more of the sulfur-containing and/or nitrogen-containing organic compounds;

separating at least a portion of the immiscible peracid-containing phase from the reaction mixture to recover an essentially organic phase from the reaction mixture; and

treating at least a portion of the recovered organic phase with a solid sorbent, an ion exchange resin, and/or a suitable immiscible liquid containing a solvent or a soluble basic chemical compound, to obtain a product containing less sulfur and/or less nitrogen than the feedstock.

12. The process according to claim 11 wherein the immiscible peracid-containing phase is an aqueous liquid formed by admixing, water, a source of acetic acid, and a source of hydrogen peroxide in amounts which provide at least one mole acetic acid for each mole of hydrogen peroxide.

13. The process according to claim 12 wherein at least a portion of the separated peracid-containing phase is recycled to the reaction mixture.

14. The process according to claim 12 wherein the treating of recovered organic phase includes use of at least one solid sorbent comprising alumina.

15. The process according to claim 12 wherein the treating of recovered organic phase includes use of at least one immiscible liquid comprising a solvent having a dielectric constant suitable to selectively extract oxidized sulfur-containing and/or nitrogen-containing organic compounds.

16. The process according to claim 15 wherein the solvent has a dielectric constant in a range from about 24 to about 80.

17. The process according to claim 15 wherein the solvent comprises a compound selected from the group consisting of water, methanol, ethanol and mixtures thereof.

18. The process according to claim 17 further comprising blending at least a portion of the low-boiling fraction with the product containing less sulfur and/or less nitrogen than the oxidation feedstock to obtain components for refinery blending of a transportation fuel.

19. The process according to claim 12 wherein the treating of recovered organic phase includes use of at least one immiscible liquid comprising an aqueous solution of a soluble basic chemical compound selected from the group consisting of sodium, potassium, barium, calcium and magnesium in the form of hydroxide, carbonate or bicarbonate.

20. The process according to claim 19 wherein the soluble basic chemical compound is sodium bicarbonate, and the treating of the organic phase further comprises subsequent use of at least one other immiscible liquid comprising methanol.